

# LAB Metric Length Activity Sheet

Names: \_\_\_\_\_

Measure to the hundredth of a centimeter.

1. Measure the length of each person's left shoe. Record the information.

\_\_\_\_\_ cm \_\_\_\_\_ mm

\_\_\_\_\_ cm \_\_\_\_\_ mm

\_\_\_\_\_ cm \_\_\_\_\_ mm

\_\_\_\_\_ cm \_\_\_\_\_ mm

2. List all your team member's names (including your own) in order of smallest to largest shoe length. \_\_\_\_\_

3. Calculate the average length of all the shoes measured. \_\_\_\_\_

4. Measure the length of each team member's pinky finger (from mid-knuckle to the tip of the finger, not including the fingernail).

Name: \_\_\_\_\_ Length: \_\_\_\_\_ cm \_\_\_\_\_ mm

Name: \_\_\_\_\_ Length: \_\_\_\_\_ cm \_\_\_\_\_ mm

Name: \_\_\_\_\_ Length: \_\_\_\_\_ cm \_\_\_\_\_ mm

Name: \_\_\_\_\_ Length: \_\_\_\_\_ cm \_\_\_\_\_ mm

5. What's the average length? \_\_\_\_\_

6. Measure the height of each team member. Record the information with proper units.

Name: \_\_\_\_\_ Height: \_\_\_\_\_

Name: \_\_\_\_\_ Height: \_\_\_\_\_

Name: \_\_\_\_\_ Height: \_\_\_\_\_

Name: \_\_\_\_\_ Height: \_\_\_\_\_

7. What's the average height? \_\_\_\_\_

8. Measure the length, width and height of the lab table. (Use proper units!)

length: \_\_\_\_\_, width: \_\_\_\_\_, height: \_\_\_\_\_

9. Measure the length, width and height of the classroom. (Use proper units!)

length: \_\_\_\_\_, width: \_\_\_\_\_, height: \_\_\_\_\_

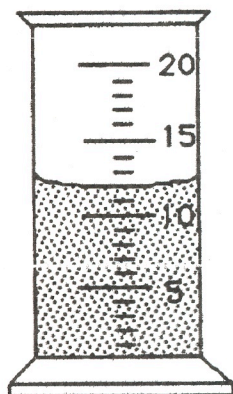
10. Calculate the volume of the room. Show work, formula and correct answer with units!

Name \_\_\_\_\_

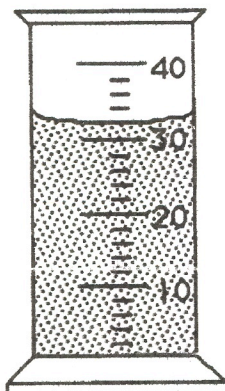
# SCIENTIFIC MEASUREMENT

## Reading Graduated Cylinders and Measuring Line Segments

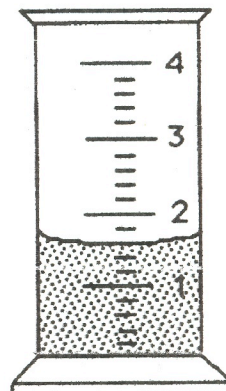
Read the meniscus line on these graduated.



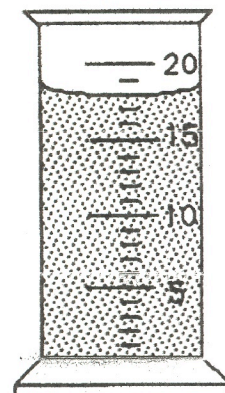
1. \_\_\_\_\_ ml



2. \_\_\_\_\_ ml

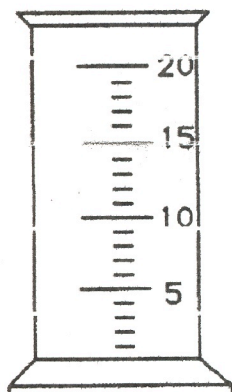


3. \_\_\_\_\_ ml

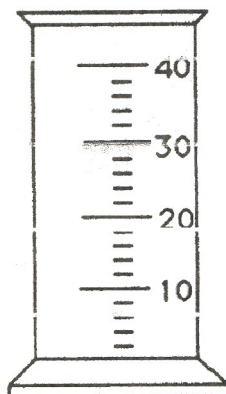


4. \_\_\_\_\_ ml

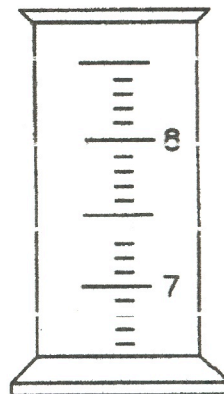
Draw a meniscus for each of the following graduated.



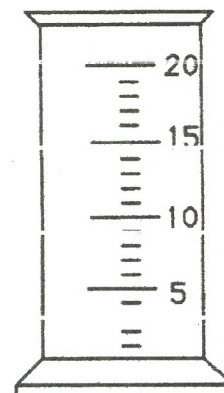
5. 14 ml



6. 22 ml



7. 7.6 ml



8. 12.5 ml

Measure the following line segments in centimeters.

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

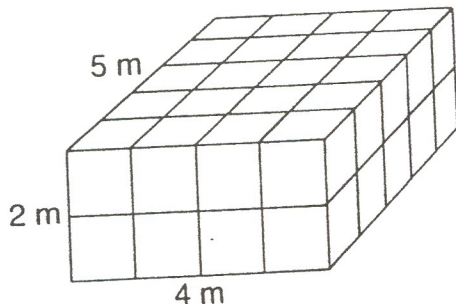
13. \_\_\_\_\_

Name \_\_\_\_\_

Use with text pages 360-361.

# Volume of Rectangular Prisms

Find the volume of this rectangular prism.



Multiply length  $\times$  width  $\times$  height.

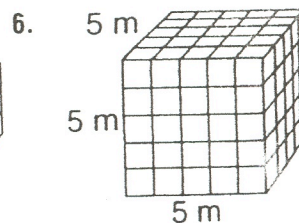
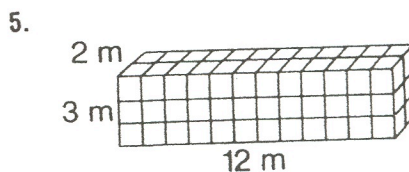
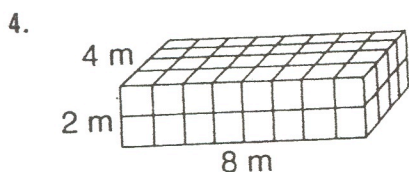
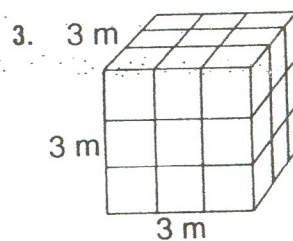
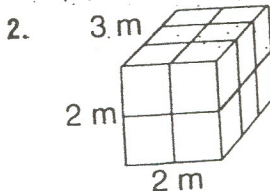
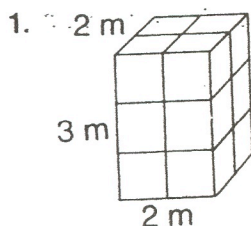
Volume = length  $\times$  width  $\times$  height.

$$V = l \times w \times h$$

$$V = 5 \times 4 \times 2$$

$$V = 40 \text{ cubic meters (m}^3\text{)}$$

Use the formula for volume to find the volume of each in cubic meters.



7.  $l = 5 \text{ m}, w = 2 \text{ m}, h = 3 \text{ m}$   
 $V =$  \_\_\_\_\_

8.  $l = 10 \text{ m}, w = 3 \text{ m}, h = 4 \text{ m}$   
 $V =$  \_\_\_\_\_

9.  $l = 6 \text{ m}, w = 2 \text{ m}, h = 4 \text{ m}$   
 $V =$  \_\_\_\_\_

10.  $l = 10 \text{ m}, w = 4 \text{ m}, h = 7 \text{ m}$   
 $V =$  \_\_\_\_\_

11.  $l = 6 \text{ m}, w = 5 \text{ m}, h = 7 \text{ m}$   
 $V =$  \_\_\_\_\_

12.  $l = 14 \text{ m}, w = 3 \text{ m}, h = 4 \text{ m}$   
 $V =$  \_\_\_\_\_



# Volume Lab

Name \_\_\_\_\_

## Part A: Count your drops!

Take a guess - How many drops of water will it take to equal 1 milliliter? \_\_\_\_\_ drops

Follow the directions to find the number of drops in 1 milliliter of water, then answer the questions. You will need a small graduated cylinder (25 ml), a beaker of water, and an eyedropper for this section.

- (1) Fill a small graduated cylinder with 10 ml of water.
- (2) Count the number of drops it takes to raise the water to 11 ml. Record the number in the chart.
- (3) Leave the water in the graduated cylinder and count the number of drops it takes to raise the water to 12 ml. Record the number in the chart.
- (4) Leave the water in the graduated cylinder and count the number of drops it takes to raise the water to 13 ml. Record the number in the chart.
- (5) Calculate your average and round to the nearest tenth.

# of drops to 11 ml	# of drops to 12 ml	# of drops to 13 ml	Average

Based on your average, how close were you to your guess? \_\_\_\_\_

Based on your average, how many drops would it take to make 1 liter? \_\_\_\_\_

## Part B: Water Displacement

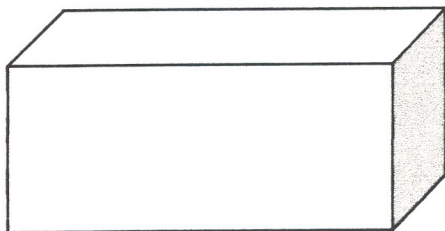
Follow the directions to find the volume of three marbles using water displacement.

- (1) Add 20 ml of water to a 100 ml graduated cylinder. Record this amount in the chart.
- (2) Add three marbles to the cylinder and measure the volume. Record this amount in the chart.
- (3) Find the difference between the two measurements and record in the chart. The difference between the two measurements will be the volume of the three marbles.

Volume of water before adding marbles	Volume of water after adding marbles	Difference in volume	Volume of 3 marbles

## Part C: Volume by Formula

Use the formula to find the volume of the box. Measure to the nearest centimeter (no decimals) before calculating your answer.



Volume = length x width x height

\_\_\_\_\_ x \_\_\_\_\_ x \_\_\_\_\_ =

Name \_\_\_\_\_

### Calculating Volume

Directions: Read the following problems and answer the questions in the space provided.

1. Calculating volume of an object with a regular shape

While walking on the beach you found a piece of driftwood. You brought it home as a souvenir of your trip to the ocean. Because you are curious about its size, you want to calculate the volume of this piece of wood. The length of the piece of wood is 29 cm. The height of the piece of wood is 22 cm and the width is 12 cm. What is the volume of this piece of wood? Show your calculations.

2. Calculating volume of an object with an irregular shape

While playing outdoors you found a pretty quartzite rock. You thought that this would be a great addition to your aquarium. If you put this rock into your aquarium, the water will overflow, so you need to calculate how much water to take out of it. Obtain a 250 ml beaker and fill it with water until it reaches 150 ml. After you put in the quartzite rock the water level reads 218 ml. What is the volume of the quartzite rock? How much water do you need to remove from the aquarium? Show your calculations.

## Mix & Match Mass

Name \_\_\_\_\_

Choose items from the container on your table that will be closest to the targeted mass. You may use a single item or mix and match items to reach the targeted mass.

**Have your teacher check your estimates before you find the actual mass!**

Targeted Mass	Item(s)	Actual Mass
1 gram		
5 grams		
10 grams		
20 grams		
50 grams		
100 grams		
200 grams		
400 grams		

Circle the BEST metric unit for each.

- (1) Your mass:        mg        g        kg
- (2) Amount of spices in a batch of cookies:        mg        g        kg
- (3) Mass of 10 pennies:        mg        g        kg

**Mass Challenge:** Use the equipment provided and your knowledge of the metric system to answer the question. Be sure to explain your procedure - how you found your answer!

What is the mass of 100 milliliters of water? \_\_\_\_\_

Procedure:



Mass and Volume Lab  
5 paragraph Lab Report  
Earth Science Mrs. Coronati

Paragraph #1 should introduce the topic. It should mention the following three things: how mass is measured, how volume is measured in Part B and Part C of the Volume lab.

Paragraph #2 should discuss the measuring mass portion of the lab.

Paragraph #3 should discuss measurement of volume by displacement as performed in Part B of the volume lab.

Paragraph # 4 should discuss measurement of volume of a solid by using  $L \times W \times H$  as done in Part C of the volume lab.

Paragraph #5 should be a conclusion. Discuss what you learned and things you should do to get accurate measurements of mass and volume.